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DEPARTMENT OF STATISTICS.

AMERICAN AGRICULTURE.

(Continued from p. 57.)

The area of our territory, as I have already remarked, is about three millions of square miles. Without proposing to do more than refer to the prominent features of our physical geography, I may remark that the calculations of the Topographical Bureau at Washington, show the existence of an interior valley drained by the waters of the Mississippi and its tributaries, nearly as large as the Atlantic and Pacific slopes together, and one-third larger than the whole domain of the Republic on the adoption of the Constitution.

The following table shows the area of each slope, and its ratio to the total area of the United States:

Territory.	Area in Square Miles.	Ratio of Slope to total Area of the U. S.
Pacific Slope	786,002	26.09
Atlantic Slope, proper	514,416	17.52
Northern Lake Region	112,649	3.83
Gulf Region	325,537	11.09
Mississippi Valley, drained by the Mississippi and its tributaries	1,217,562	41.47
Total	2,956,166	100.00

Thus, over two-fifths of the national territory is drained by the Mississippi and its tributaries, and more than one-half is embraced in what may be called its middle region. One-fourth of its total area belongs to the Pacific, one-sixth to the Atlantic proper, one twenty-sixth to the Lakes, one-ninth to the Gulf—or one-third to the Atlantic, including the Lakes and Gulf.

As connected with the facility of water transportation, it may be interesting to add, that a calculation made at the office of the Coast Survey for 1853, gives for the total main shore line of the United States, exclusive of sounds, islands, &c., 12,609 statute miles, of which 54 per cent. belongs to the Atlantic coast, 18 to the Pacific, and 28 to the Gulf coast; and that if all these be followed, and the rivers entered to the head of tide-water, the total line will be swelled to 33,069 miles.

The general character of the soil between the Mississippi river and the Atlantic is that of great fertility, as also that on the western side of the Mississippi, as far as the 98th meridian, including the States of Texas, Louisiana, Arkansas, Missouri, Iowa, and Minnesota, and portions of Kansas and Nebraska; but from that meridian westward to the Rocky Mountains, and thence nearly to the Pacific, excepting the rich and narrow belt already alluded to along the ocean, is found in some parts a waste utterly barren, and generally the land is unfit for the support of an ordinary civilized community. Of the entire area of the United States, only about one-thirteenth part is improved; about one-eighth more is occupied but not improved. The entire number of acres occupied is 293,560,614, or nearly one-sixth part of the national domain.

The olden theory in regard to the soil first occupied by settlers, broached by Ricardo and Malthus, and for a long time adopted without question, was that the best lands were first occupied by the pioneers of civilization; but this has been refuted by Mr. Carey, whose careful array of facts gathered from the history of various nations, including our own, seems to show conclusively that the richest lands are the last to be cultivated, and hence we may conclude that among the unoccupied portions of our country, there remains soil of greater fertility and ultimate value, than is to be found in the thirteenth portion now under actual cultivation.

The States and Territories among which these lands are divided, are forty in number, besides the District of Columbia, including within their organization 1,620 county divisions.

The total number of farms and plantations in 1850 was 1,449,075; the number of improved acres 113,032,614, and of unimproved 180,528,000; the farms average 203 acres, and in value $2,258. The implements and machinery on each farm average in value $105. The proportion of improved land in the different sections of the country is as follows:

In New England, 26 acres in 100.
In the South, 16 " "
In the North-West, 12 " "
In the South-West, 5 " "

In the South, the number of acres to the farm is the largest, but the value is greatest in the Middle States. The average value of the Union is $11 04 per acre, ranging from $1 41 in Texas, a fraction more in California, and $5 34 in the Southern States, to $11 39 in the North-Western States, $20 27 in New England, and $28 07 in the Middle States.

These farms, with occasional exceptions, as among the ancient manors of New York, of late conspicuous for anti-rentism, are owned in fee by the cultivators, and this rule constitutes an essential element of difference in comparing American agriculture with that of England, where the cultivators are nearly uniformly tenants, generally under terms of longer or shorter continuance, and sometimes at will, causing a separation and occasional clashing of those interests of the landlord and the farmer which are with us united in the same person.

What influence this difference may exert upon the character and progress of agricultural improvements, and how far the superior wealth, and to some extent, more liberal education of English landlords, is counterbalanced by the individual energy and enterprise fostered in America, by an undivided interest, are interesting questions that will be probably elucidated by a comparision of future returns.

The census of 1840 did not ascertain the number of acres of improved land in the United States, so that there are no data showing the increase during the last decade. The report of the Secretary of State for 1856, gives the following statement for the year 1850.

	Acres.	Crops.	Value.
Indian Corn	31,000,000	592,071,104 bush.	$296,035,552
Pasture Lands	20.000,000	....	....
Hay	13,000,000	13,838,242 tons.	138,382,420
Wheat	11,000,000	100.485.844 bush.	90,437,260
Oats	7,500,000	146.584,179 "	51,304,463
Cotton	5,000,000	978.317,200 lbs.	78.265,376
Rye	1.200,000	14.188,813 bush.	9,932,169
Peas and Beans	1,000.000	9,219,901 "	6,914,925
Irish Potatoes	1,000,000	65.797,895 "	26,319.158
Sweet Potatoes	750,000	38,268,148 "	19,134,074
Buckwheat	600.000	8,956,912 "	5,374,147
Tobacco	400,000	199,752.655 lbs.	11,985,159
Sugar	400,000	237,133,000 "	9.485,320
Barley	300,000	5.167.015 bush.	3.875,261
Rice	175,000	215,313,597 lbs.	4,306,270
Hemp	110.000	34,871 tons.	4,184,520
Flax	100.000	7,809,676 lbs.	624,744
Gardens and Orchards	1.000,000	....	13,003,216
Vineyards	250,000	221,249 gall.	442,498
Other products	1.000,000		
Improved, but not in actual cutivation	17,247,614		
	113,032.614		

Another table, from the Compendium of the Census, page 176, giving more fully the values of the agricultural products of the United States for 1850, including the annual products of live stock, &c., makes the total for that year thirteen hundred millions, and the total for 1854 was estimated at sixteen hundred millions.

This table shows us that in 1850 the four largest staples of our country, ranking them according to their annual value, were—

Indian Corn	$296,000,000
Hay	138,000,000
Wheat	90,000,000
Cotton	78,000,000

Before proceeding to note some further statistics in regard to Indian corn, or as it is sometimes called, *maize*, let me briefly mention the doubt expressed at a recent meeting of the British Association, whether this grain is strictly a plant of the New World, and allow me to refer to the evidence that proves it, as we think conclusively, to be a native grain.

Stress was laid in the British Association on the fact of its occurrence in the floral decorations of Rome in the time of Rafaelle; but it was said in reply that botanists had always regarded it as a plant of the New World, and the evidence on this point adduced by Alfonse De Caudolle in his great work on the geographical distribution of plants, was quite complete; and it was sensibly suggested that if it had been a plant of the Old World they could scarcely have failed to raise it, and that Rafaelle's painting it might be accounted for by the interest with which all the products of the New World were then regarded. It is referred to by the most ancient Peruvian historians; it was cultivated by the aborigines in the time of Columbus, and is still found growing in a wild state from our Rocky Mountains to the forests of Paraguay. The venerable Baron Humboldt, whose eminent authority may be regarded as settling the question, says: "It is no longer doubted among botanists that *maize* or Turkish corn is a true American grain, and that the old continent received it from the new."

Indian corn is pre-eminently the great staple of the country, surpassing all others in the area of its cultivation, and in the amount and value of the crop, yielding in 1850, within a fraction of three hundred millions of dollars, being all but equal to the united values of the three next staples in their order, wheat, hay and cotton; and as Indian corn is not only the most important, but the most universal crop, extending from the northern to the southern limit of the

United States; its cultivation would seem to afford a better test than that offered by any other of the progress of American tillage.

In the production of Indian corn no state has retrograded. The crop in 1840 was nearly four hundred millions of bushels; in 1850 it was within a fraction of six hundred millions, being a gain of 56 per cent., while the increase of the population, during the same time, was only 35 per cent. The estimated crop for 1855, according to the Secretary of the Treasury, was between seven and eight hundred millions, or nearly double the crop for 1840, and the crop for 1856 was estimated at fully eight hundred millions of bushels.

One of our distinguished agriculturists, Prof. Mapes, in an interesting lecture on Indian corn before the American Institute, has remarked that it may be said of our corn crop, as Mr. Webster said of the turnip crop of England, that its failure for three successive years would nearly bankrupt the nation.

It is with us a staple food of men and of animals. To it we are indebted in part for our beef, and in a very large proportion for our pork. In the far West it is fed largely to cattle and pigs for the more convenient exportation of the produce of the country. The number of hogs fattened on it nearly equals the number of inhabitants, and their lard has become a staple article of export. The sugar estates in the West Indies are reported to be mainly supported by American Indian meal, and its use is extending in Ireland, England, and throughout the world. In 1850, somewhat more than eleven millions of bushels were consumed in the manufacture of malt and spirituous liquors.

While the value of the corn crop has increased so rapidly, the wheat crop, from 1840 to 1850, according to the census, had increased only 15 per cent. It was suggested in the report of the Patent Office for 1852 and '53, that this crop would have shown an equal advance with that of Indian corn, had it not been badly damaged, especially in the North-Western States, before the harvest from which the census was taken; but the statistics of subsequent harvests in particular States seem to render this supposition improbable.

The breadth of land in the United States, suited to the wheat crop, is comparatively small, and in the older States would appear to be diminishing.

In New England the culture of wheat is rapidly declining; in the Middle States it is nearly stationary, the increase for the ten years previous to 1850 being only about fifteen per cent. In the North-Western States its culture has rapidly increased; and it is from this district that the largest supplies for export are derived.

Chicago, which, twenty years ago, imported flour and meal for her own consumption, has established brands of flour, which are now recognised throughout Europe; and she is shown by recent statistics to be the largest primary grain depot in the world, rivaling Odessa and Galatz, Dantzig and St. Petersburg, while she leads all other ports of the world also in the quantity and quality of her exports.

The population of Chicago, which, in 1850, was 29,000, in 1856 had increased to 104,000.

The census of New York for 1855 shows that her wheat crop, once so famous, is actually decreasing, owing, as is supposed, in part to the ravages of insects, and in part to diseases of the plant, assisted, perhaps, by a gradual deterioration of the soil.

The wheat crop in New York was 12,286,418 in 1840, and only 9,092,402 in 1855, a decrease of twenty-five per cent., while the crop of Indian corn, in the same State, increased during the same period from 10,972,286 to 19,299,691, or nearly 100 per cent., showing, when taken together, not a diminution in the bread crop of the State, for the joint increase is five millions of bushels, but simply a partial substitution of Indian corn for wheat.

In no country can a bread crop be raised with less labor than Indian corn generally throughout the United States, and it is estimated that the same amount of toil of a man and horse which will raise a bushel of wheat in England will raise ten bushels of corn on favorable soil in this country.

The Patent Office Report for 1855, in an interesting paper, by Mr. D. J. Browne, shows that a comparison of the nutritious values of corn and wheat, ranging at from two to three times the price of a bushel of corn, gives a decided preference to the corn; and this fact has, doubtless, had its influence in extending its consumption among our people.

But as yet neither this fact nor the other excellencies of corn meal are appreciated in Europe; and the exports of this grain are very much less than those of wheat. In 1854 the proportions were $40,000,000 worth of wheat to $7,000,000 worth of corn. Experiments in the preparation of corn are being made by the Government of Prussia, and elsewhere in Europe, which will probably result in its more rapid introduction as a staple article of food.

Looking at the aggregate exports of the country for the past year, 1857, to learn the proportion due to the culture of the soil, we find them to be as follows:

The Sea	$3,739,644	Cotton	$131,575,859
" Forest	14,699 711	Raw produce	3,421,447
Agriculture	75,069.634	Manufactures	30,139,646
Tobacco	20,260,772	Specie & bul'n	60,078,352
		Total value of exports	$338,985,065

of which there was due to the culture of the soil (agriculture, tobacco and cotton) $229,661,832, or more than two-thirds of the sum total.

Comparing this amount with the exports due to the culture of the soil in 1847, we find that they were in that year $131,000,000, the increase for the ten years being more than 70 per cent.

The exports of breadstuffs for the last 15 years have singularly fluctuated, and, although their large increase from $27,701,121, in 1846, to $68,701,921, in 1847, and their fall again, in 1848, to $37,472,751, may be accounted for by the Irish famine of 1847, arising from the potato rot and short crops generally; it seems less easy to account for the differences in the exports of the last five years. They were in

1852	$25,857,027
1853	32,985,322
Rising, in 1854, to	65,941,323
Sinking, in 1855, to	38,895,348
And rising, in 1856, to	77,187,301

They must be owing, however, to fluctuations in the home supply, as well as in the foreign demand, affected as the latter has recently been by European and Eastern wars, and the consequent suspension of trade with the Baltic, as the average export price of flour from the country, as ascertained by the Treasury Department for the years in question, throws little light upon it.

That price was as follows:

1852	$4 24
1853	5 60
1854	7 88
1855	10 10

A statement showing the actual average export price of flour at New York from the year 1800 has been published by the Department.

It is desirable that the causes of such fluctuations should be ascertained as nearly as possible, for, while unexplained, they are calculated to excite doubts in regard to the certainty of agricultural profits, and the element of uncertainty, wherever found, is calculated to discourage and to deter.

Passing, from the great staples of wheat and Indian corn to the other agricultural products of the country, a comparison of the census of 1840 with that of 1850 gives us these general results.

And, first, as regards Stock:

The number of horses, asses and mules, had increased in number something more than half a million, the total in 1850 being 4,896,650. The number of horses had not increased as rapidly as other stock, in consequence of the extension of railroads lessening their demand for the purposes of travel; but, in the newly-settled States, where railroads were but commencing, the increase of horses had kept pace with the population. There is about one horse to every five persons in the United States. The 500,000 asses and mules returned are almost confined to the Southern States, where the climate is regarded as better adapted to this animal than the horse.

The neat cattle had increased nearly three and a half millions, and numbered 18,378,907, of which 6,385,094 were milch cows, 1,700,744 working oxen, and 10,293,069 other cattle.

The rate of increase of neat cattle for the ten years was about twenty per cent. The amount of butter produced in 1850 was 313,266,962, and of cheese 105,535,219 pounds. The average value of the exports of these two articles, from 1845 to 1850, was about one million and a half of dollars.

Swine had increased four millions, numbering in 1850, 30,354,213.

Sheep had increased two and a half millions, and numbered 21,723,220.

In New England there was a remarkable decrease in their number, from 3,811,307, in 1840, to 2,164,452, in 1850, a decrease of 45 per cent. In the five Atlantic or Middle States, New York, New Jersey, Pennsylvania, Delaware, and Maryland, taken together, there was a decrease of 22 per cent. The augmentation has chiefly been in the States south of Maryland, and west of New York.

The returns of wool were as follows:

1840	35,802,114 pounds	$11,345,318
1850	52,516,959 "	15,755,088
1855	61,560,379 "	23,392,944

an increase of about 46 per cent. The average weight of the fleece yielded by each sheep was, in 1840, 1.84 pound, and in 1850, 2.43, indicating a great improvement in the breed. This improvement is chiefly shown in the returns relative to Vermont, Massachusetts and New York.

The total value of live stock in the United States in 1855 was $544,189,516, and the value of animals slaughtered, $111,703,142.

The grain, root and other crops, from 1840 *to* 1850:

Rye had decreased from 18,645,567 bushels to 14,188,813.

Oats had increased from 123,071,341 bushels to 146,584,179.

Potatoes (Irish and sweet) had decreased from 108,298,060 bushels to 104,066,044.

Hay had increased from 10,248,108 tons to 13,838,642.

Hops from 1,238,502 pounds to 3,497,029 in 1850, and, as estimated by the Secretary of the Treasury, to 4,820,752 in 1855, indicating a rapid increase in the consumption of Lager-beer.

Cotton had increased from 799,479,275 pounds in 1840 to 978,317,200 in 1850, and to 1,089,409,908 in 1855.

Rice from 80,841,422 to 215,313,497, while Tobacco has decreased from 219,163,119 pounds to 199,752,655.

Wool had increased from 35,802,114 pounds to 52,516,959.

Silk Cocoons had decreased from 61,652 pounds to 10,843.

Wine had increased from 124,734 gallons to 221,249.

From a table of the actual crops per acre in the different States, it would seem that there is a diversity so great as to confirm the doubts in regard to its correctness frankly intimated by the compiler, who states that nothing better can be framed from the returns, which, in general, were very carelessly made, or entirely neglected.

In Wheat we find the average number of bushels to the acre to be 5 in Alabama and Georgia, 7 in North Carolina, Virginia and Tennessee, ranging upwards in the other States until it reaches 12 in New York, Ohio and Indiana, 13 in Maryland and Vermont, 14 in Iowa and Wisconsin, 15 in Florida, Pennsylvania and Texas, and 16, the highest average, in Massachusetts, being three times the average of the lowest.

In Rye we find the average of bushels to the acre to be 5 in Virginia, 7 in Georgia and Tennessee, 8 in New Jersey, 17 in New York, and 25 in Ohio, or five times the lowest average.

In Indian Corn we find the lowest average to be 11 bushels to the acre in South Carolina, 15 in Alabama, 16 in Georgia and Louisiana, 17 in North Carolina, 18 in Mississippi and Virginia, and so rising upwards until it reaches 27 in New York and Maine, 32 in Vermont and Iowa, 33 in Indiana, Illinois and New Jersey, 34 in Missouri, 36 in Ohio, and 40 in Connecticut, some three and a half times the lowest average.

In Oats we find the lowest average, 10 bushels to the acre in North Carolina, 12 in Mississippi, South Carolina and Alabama, 13 in Virginia, 18 in Arkansas, Georgia and Kentucky, 20 in Delaware, Indiana and Maine, 21 in Connecticut, Maryland and Ohio, 22 in Pennsylvania, 25 in New York, 26 in Vermont, New Jersey, Missouri, Michigan and Massachusetts, 29 in Illinois, 35 in Wisconsin, and 36 in Iowa.

Of Rice we have returns only from three States, Louisiana giving 1,400 pounds to the acre, South Carolina 1,750, and Florida 1,850 pounds.

Sweet Potatoes vary in quantity from 65 bushels to the acre in Texas to 175 in Louisiana, 200 in Alabama, and 400 in Georgia.

Irish Potatoes yield 65 bushels to the acre in North Carolina, 75 in Maryland, New Jersey, Ohio and Pennsylvania, 100 in Indiana, Iowa, New York and Rhode Island, 120 in Maine and Tennessee, 125 in Georgia and Wisconsin, 130 in Kentucky, 140 in Michigan, 170 in Massachusetts, 175 in Florida, 178 in Vermont, 230 in New Hampshire, 250 in Texas.

In this table particularly it is difficult to account, except on the supposition of error, for so large a difference in the average yield per acre between States so alike in character as Alabama (60) and Georgia (125), or between Connecticut (85), Vermont (178) and New Hampshire (230).

No question, perhaps, connected with American Agriculture is of more general interest and importance than the measure of profit which may reasonably be expected from capital invested in farms, and managed with that degree of skill and industry, which are the recognised requisites to success, in the various branches of commerce and of manufactures, in the trades and learned professions.

It has been truly remarked, that "mankind have a habit of graduating the rank of labor by the recompense it receives;" and it is undoubtedly the conviction that agricultural labor is less profitable than many other employments pursued in cities and large towns, that induces so many thousands of our ambitious and energetic youths, especially in New England and the Atlantic States, to forsake their rural homes, and the half-cultivated farms of their fathers, in the hope of more rapidly achieving independence, and perhaps fortune, in communities where every branch of trade is already over-crowded with anxious competitors.

The same idea is not unfrequently entertained by capitalists. The common belief seems to be, and it is, doubtless, founded upon common experience, that the profits of farming op erations are very moderate, and that it is idle to expect more than a small per centage from capital thus invested. A contrary belief is usually attributed to an undue enthusiasm with no basis of fact, and,occasional instances of large profits are regarded as extraordinary exceptions, that are to be attributod to local and special causes, and are not, therefore, to be allowed any weight in the support of a general theory.

It is most desirable that accurate statistics in regard to the fair profits of capital invested in agriculture, after just allowance for the industry required for its development, should be gathered from all sections of the country, and it would be well if some inquiries to this end were embodied in the Agricultural schedules for the approaching census.

The fact is as yet but imperfectly appreciated among us, that Agriculture, which, in its origin, was but an art, has been gradually raised to the dignity of a science; and now, thanks to the discoveries of the great practical and analytic chemists, in Europe and America, of whom Liebig is the chief, stimulated and aided by the mechanical invention, for which our age and country are so remarkable, it occupies a position of pre-eminence unknown during the last century.

" There is, I believe," says Mr. Everett, " no exaggeration in stating that as great an amount and variety of scientific, physical and mechanical knowledge is required for the most successful conduct of the various operations of husbandry, as for any of the arts, trades, or professions."

Assuming this position to be correct, it is clear that no amount of evidence in regard to the profits of farms conducted by men wanting in this wide range of scientific, physical and mechanical knowledge, can determine the profits that may be reasonably expected from farms of the like capability, where that varied knowledge institutes and guides every operation.

But there is reason to believe, that while the limit of Agricultural profits generally throughout the country is as much below the line it is capable of reaching, as the present standard of Agricultural education is below that high standard to which Mr. Everett directs the ambition of the American farmer, there are good grounds for the opinion, that, with the increase of an Agricultural literature, the diffusion of books and newspapers, of farmers' clubs, of State, county and town, Agricultural societies, of national and local fairs and exhibitions, there is a perceptible and rapid improvement in the rural economy of the country, in the intelligent culture of the soil, and in the profits of Agricultural capital.

So long ago as 1795 Mr. Burke placed the profits of a proprietor of 1,200 acres at 12 per cent. Sir John Sinclair, a quarter of a century later, declared the proper profits at 10 to 15 per cent. M. Rives, of Virginia, by whom these facts were mentioned in a very interesting Agricultural address, stated the profit of the model farm of Gignon, near Versailles, at 14 per cent. The " *Revue des deux Mondes*" for February 15th, 1858, in an article entitled, "Les Questions Agricoles en 1848," mentions that the net profits of the farm at Bresles, in the department of the Oise, rose, in 1856, to 246,000 francs upon a capital of 800,000, being more than 30 per cent.

Occasional accounts in our Agricultural papers indicate a rate of interest, which, if verified as one that could be reasonably anticipated with a due share of skill and industry, would immediately induce the investment of millions of capital in Agricultural operations, to the benefit of the country at large, as well as to the individuals making the advances.

One point that should not be lost sight of in a consideration of the advantages attendant upon Agricultural operations is the safety of the capital invested, compared with the chances of loss attendent upon commercial and manufacturing investments. The Hon. Emory Washburne, of Massachusetts, in an address before the Worcester Agricultural Society, in 1854, stated some facts bearing upon the question, which a statistical inquiry, if one could be accurately made, into the successes or reverses of the various pursuits in which our countrymen engage, might probably multiply to an extent, that, without proof, would hardly be credited. Of the merchants in Boston doing business at a certain wharf during forty years, only six became independent, the remainder failed or died destitute of property. Of one thousand merchants, having accounts at a principal Boston bank during the same years, only six had become independent.

Another investigation led to the startling result, that of every hundred traders, but seven succeed in acquiring wealth. From such reverses the farmer is comparatively free. Of eleven hundred and twelve bankrupts who took the benefit of the bankrupt law in Massachusetts, only fourteen were farmers ; and of twenty-five hundred and fifty bankrupts in New York only forty-six were farmers. Less than two per cent. of the bankrupts belonged to the Agricultural population, although that population so largely exceeds all the rest of the people however classified.

At the present moment, when the leading manufacturing interests of the country are in a languishing condition from their recent reverses, and the conviction is generally felt of the precariousness of their profits for the future, dependent as those profits are upon the varying policy of opposing parties; the claims of Agriculture upon the attention of capitalists, as well as statesmen, are likely to be more fairly scrutinised than when commerce and manufactures were in the full tide of success. Should the schedule for the approaching census include the question of Agricultural profit in such a form that the returns may afford reliable data for prudent calculations, the next decade may perhaps see an investment of capital from the Atlantic States, in the cultivation of wheat and corn in our western valleys, to an extent that shall materially swell our exports of breadstuffs, and constitute them the chief element in our foreign exchanges.

Much has been said of late years of a gradual deterioration of the soil in the older Ssates, as evinced in part by the decreasing ratio of crops to the acre, as compared with the ratio in former years, and with the the usual ratio in other countries.

Mr. Morrill, M. C., of Vermont, by whom a bill has been introduced into the House of Representatives designed to grant to the several States some ten millions of acres to be divided amongst them in proportion to the number of senators und representatives they send to Washington, with the view of promoting Agricultural education and Agricultural science, by the establishment of an Agricultural college in each State, has made some startling statements upon this subject. He affirms that Agriculture is rapidly declining in every State of the Union, that the quantity of food produced bears each year a smaller proportion to the number of acres under cultivation, and that over a very wide area some of the most useful crops bid fair to become extinct.

A writer in the "Year Book of Agriculture for 1855," on the "Alarming Deterioration of the Soil," referred to various statistics of great significance in connection with this subject. Some of them regarded Massachusetts, where the hay crop declined 12 per cent. from 1840 to 1850, notwithstanding the addition of 90,000 acres to its mowing lands, and the grain crop absolutely depreciated 6,000 bushels, although the tillage lands had been increased by the addition of 60,000 acres.

In Indiana the river bottoms which used to produce an average crop of sixty bushels of corn to the acre, now produce but forty. In Wisconsin, which is younger still, it is estimated that only one-half the bushels of wheat are now raised to the acre that were raised twelve years ago; and the writer declares as the conclusion of the whole matter, "that the soils of New England, after all the admonitions we have received, are annually growing poorer, and that *even the virgin lands of the great West* are rapidly becoming exhausted by their fertility."

He refers to the large falling off of the wheat and potato crops in New England, which have however been replaced by Indian corn, and also to the falling off of wheat in Tennessee, Kentucky, Georgia, and Alabama, to the extent of 60 per cent. from 1840 to 1850, and assumes that the agricultural statistics of each State tell the same sad story.

As regards a falling off in the production of the country, I think it is clear from a comparison, not of wheat and potatoes alone, but of the total products of the soil, especially of Indian corn, in 1840, with that of the same crops in 1850, that Mr. Morrill is mistaken; but as productiveness of crops and destructiveness of soil are said to be the two most prominent features of American agriculture, the largest harvests in our young States ought not to blind us to the fact that the fertility of those parts of the older States which once yielded as abundantly, seems to have been steadily diminishing for a long course of years.

This fact is exhibited, not only in the wheat lands of New England, and other parts of the North, but on the tobacco fields of Virginia, and the cotton plantations of the South; and the subject undoubtedly deserves the most careful investigation.

The deterioration of our soil is doubtless owing, in a great part, to a careless system of cultivation, common to new countries where land is cheap and labor is dear, and the soil is naturally productive, and the individual cultivator is intent upon large immediate returns, thoughtless of the permanent fertility of his farm, careless of the interests of his successors, and regardless of the prosperity of the community at large. It has been suggested that every agricultural people runs the same race of exhausting culture, shallow plowing, a continuous course of impoverishing, with neither rest, rotation, nor sufficient manure; and that necessity alone can convince them that duty and interest both demand, that land shall be so tilled as to increase rather than diminish in fruitfulness. Such a necessity, in the lessening crops of the Atlantic States, and westward emigration in search of more fertile territories, already presents itself to the intelligent American agriculturist: and the reasonable belief that the same exhaustive system will soon begin to tell upon the most productive regions of the West, has led to the discussion in agricultural newspapers, and at farmer's clubs, of the philosophical causes of the exhaustion, and the best means of renovation.

In some sections of the country, efforts to restore exhausted lands have been attended with the most marked pecuniary success. Mr. Ruffin, of Virginia, estimates the increased value of reclaimed lands in Eastern Virginia, by marling and liming, from 1838 to 1850, at some thirty millions of dollars. In the well known case of a success from claying a light soil by the celebrated Coke of Norfolk, afterwards Earl Leicester, that gentleman doubled the value of his estates in Norfolkshire; and among numerous instances of immense improvement simply from drainage and deep plowing, with but little aid from fertilizers, may be mentioned one cited by Prof. Johnston, of the Home farm at Yestees, belonging to the Marquis of Tweedale, where the land, by these means, was raised in value eight times—from 5 shilling to 40 shillings rent per acre.

There are no reliable data from which we can now gather the progress of deterioration in productive lands in the United States, or the reclamation of exhausted lands; but the rapid increase in the use of *guano*, the most powerful of restoratives, indicates to some extent the increasing attention paid to fertilizing.

The consumption of *guano* for 1854, as stated by Prof. Mapes, was about 140,000 tons. The amount sold in England, during the year 1855, was stated by Mr. Nesbitt at 210,000 tons, being an increase of twenty per cent. on the consumption of 1854, which was also an increase of twenty per cent. over that of 1853; this increase has taken place in the face of a rise in the price, from forty-five to about eighty dollars per ton.

It would seem proper that the schedules for the new census, should embrace inquiries in regard to the deterioration or improvement of the soil, which may be shown, not only by the ratio of crops to the acre at successive periods, but by the market value of the same lands at stated intervals; and that the schedules should also exhibit generally the quantity and prices of the various fertilizers in use—barn-yard manure firstly and chiefly, then guano, poudrette, lime, gypsum, marl, muck, and so forth, that are yearly devoted to the enrichment of our soils. Upon this item of manure, insignificant as it might seem to the unreflecting mind, depends the continuous prosperity of our country. This is the secret of England's agricultural wealth. Mr. Webster, in his sketch of English agriculture, quoted the extraordinary fact stated by M'Queen, "that the value of the animal manure annually applied to the crops in England, at current prices, surpasses in value the whole amount of its foreign commerce," and he added, "there is no doubt that it greatly exceeds it."

The schedules might also advantageously give us, not simply the amount of new lands brought into cultivation, but of the worthless lands that have been reclaimed by drainage.

In almost all the States extensive tracts of swamp lands are found, not only unfit for cultivation, but frequently inducive of that fearful scourge of health and happiness, fever and ague, that year after year prostrates the energies, and shortens the lives of tens of thousands of our countrymen.

Large grants of these swamp lands have been gratuitously made by the Federal Government to the States, in the hope of their reclamation through measures to be adopted by the State Government. Since 1849 nearly sixty millions of acres have been thus granted. In the drainage of large tracts of land we have the benefit of the experience of Europe, especially of Holland, where the Harlem Lake, thirty-three miles in circumference, and thirteen feet deep below the tide, has, since 1839, been converted into a most fertile tract, occupied by some two thousand inhabitants, and exhibiting fields of verdure dotted with numerous cottages, and enlivened by cattle, horses and sheep, grazing on the fruitful meadows. The lands thus reclaimed from the ocean are of extraordinary fertility, and are estimated as capable of supporting seventy thousand persons.

Of the pecuniary results of drainage in this country, Gov. Wright, of Indiana, quoted an example in a public address, touching the marshy lands of that State, embracing three thousand acres. He mentioned a farm of 160 acres which had been sold at five hundred dollars, and, after an expenditure of two hundred dollars in drainage, was worth upwards of three thousand dollars, or an advance of more than 500 per cent.

But, apart from these large tracts of overflowed lands, scarcely a farm in the country but would be improved by thorough drainage, and it would not be difficult to ascertain the number of acres under-drained in each year of the census, nor the estimated additional value which they thereby received.

Looking at the acreage now devoted to Indian corn, to say nothing of our other crops, it has been estimated that by the adoption of an improved system of agriculture, embracing drainage, deep ploughing and skillful manuring, the entire crop now yielding 400 millions of dollars, might, upon the same breadth of land, be trebled if not quadrupled. At present, with occasional exceptions, our average crops per acre are even less in our most fertile and almost virgin States than in the soil of Europe, that has been cultivated for centuries.

Take wheat, for instance. The average crop per acre in New York, Ohio and Indiana, is 12 bushels; in France it is 13; in England, 21; in Flanders, 23; in Scotland, 30 (on the authority of Professor Johnston); and in New Brunswick, 19.

How the average might be increased throughout this country by careful culture, we may, in part, learn from the returns of occasional crops in England of seventy bushels, in New York of sixty, on the prairies of forty-four, and at San Jose, as is reported, of eighty-seven.

Yet another topic closely connected with the interests of American agriculture is the recent diminution of the proportion of the male population engaged in agricultural pursuits, as compared with the number engaged in commercial and other pursuits. The precise ratio of that diminution cannot be ascertained from the census, for the reason that the tables of 1850, on the leading occupations of the people, were based upon the whole number of male inhabitants over fifteen years of age, including all the free males, and three-fifths of the male slaves; whereas the former tables of occupation, made in 1840 and 1830, were based upon the entire population. The census of 1840 made the portion engaged in agriculture 77.4 per cent. for both sexes, that of 1850 only 44.69.

There is, therefore, reason for believing that the proportion of the population devoted to agricultural pursuits is decreasing; and it is important that the schedules of the next census should be drawn with reference to the determination of this point with entire accuracy, and should develop whatever facts may be essential, to enable us to discover, and if possible to correct, the causes that may be diverting an undue proportion of American industry from the culture of the soil.

The attractiveness of town and city life for the laboring classes may be lessened by a study of the tables of mortality, showing that the average duration of life is much larger in the rural districts.

In England the average duration of life is forty-five years in Surrey, but only twenty-five in Manchester and Liverpool.

A paper, by Mr. Edward Jarvis, on vital statistics at Dorchester, in Massachusetts, read before the British Association in January, 1840, showed that, out of 1,700 persons,

The average life of farmers was......45 years.
" " merchants........33 "
" " mechanics........29 "
" " laborers..........27 "

Looking from the average years of life to the increase of the male population, we find it stated that in Massachusetts, among the cities and towns, it is 6 per cent., while among the agricultural population it is 9 per cent., a difference of male births in favor of the rural districts of 33⅓ per cent.

These facts, if verified by the national statistics, and brought home to the consciousness of the people, are certainly calculated to restrain a preference for the crowded streets and impure atmosphere of our cities, over the broad fields and bracing air of the country; and the feverish anxiety for rapid gains in mercantile pursuits, may be advantageously checked by statistics showing the uncertain gains of commercial speculations, and the certain profit of enlightened agricultural toil.

The leading facts at which we have glanced, of an increasing foreign demand for breadstuffs, the limited breadth of our arable land, which thousands of our citizens have been taught to regard as inexhaustible, the gradual deterioration of the soil from a wasteful system by which the constituents of fertility are removed with each successive crop, without being restored by appropriate manures—a system based upon the desire for immediate gains, without thought of the sacred duty that devolves upon us to transmit the soil to our posterity, with undiminished productiveness, that it may sustain in comfort and happiness the unnumbered millions that are presently to occupy our land; these and similar considerations connected with the present and future prosperity of our country, appealing at once to the interest and the patriotism of the nation, may be so elaborated and diversified, and verified by the tables of the census, that its returns shall teach us not simply lessons in political economy, but lessons of daily duty, the benefits of which shall be reaped alike by the present and future generations.

There are various topics connected with American agriculture, on which I would like to touch, did time permit me. One, the recent and rapid introduction of improved agricultural machinery, soon, probably, to be followed by the use of steam ploughs and other machinery worked by the same motor, overcoming, to a great extent, the chief difficulty of the American farmer in the high price of labor; that feature of our agriculture which constitutes so marked and essential a difference between the practical agriculture of America and Europe.

Another is the spread of agricultural science, through the efforts of the patent office distributing their reports and seeds gathered from Europe; through the multiplication of books and papers devoted to the subject, and by county, state and national societies and farmers' clubs, in their frequent meetings, addresses, and exhibitions of agricultural implements and products.

What the country now most requires in reference to its agriculture, is, that its condition should be faithfully photographed in the returns to each federal census, and it will be for the agricultural section of this body to prepare well-considered suggestions for the new schedule, and submit them to the Federal Government. Such suggestions will appropriately come from the American Geographical and Statistical Society, in view of its national character and the scope of its labors; and such suggestions, judging from the past, the Federal Government will cheerfully receive and carefully consider.

Among the additional items which might advantageously be included in the schedules, I would suggest the following:

As regards persons employed in farming.—The proportion of the population thus employed of both sexes. Their average life, as compared with that of persons living in towns, and of other trades.

As regards capital employed in agriculture.—Not only the proportion invested in land, stock and implements, but the profit thereon received during the year immediately preceding the census.

As regards the farms.—Not only the improved and unimproved lands, and the proportion in meadow, pasture or tillage, but the number of acres of each farm that have been drained; the number requiring draining; the number drained during the last year; the cost of draining, and the value of the land before and after.

In regard to the improvement or deterioration of the soil.—The average of each crop, and cost of each per acre; the average of bushels or tons to the acre, and the cash value of each on the spot.

In regard to manures.—The amount, variety, and cost of those applied during the last year, and the rate of cost per acre.

Other suggestions will, doubtless, be made, a collation of which, by the Bureau of the Census, may afford us, in future years, the means of tracing the progress of American agriculture, and reading its actual condition at each decade, with the same facility with which a prudent merchant reads the past and present of his business in the carefully prepared balance sheet; and if the future of America shall continue to exhibit the same steadily progressive advance that we find in her past, the tabular results of each succeeding census, dry and uninteresting as they may seem to those who shall see in them but columns of figures, will in fact develop the fulfilment of some of those prophesies of the coming wealth and splendor of the Western Continent, that when occasionally uttered by our far-seeing economists, are apt to be regarded as the careless dreams of visionary enthusiasts.

Mr. President and Gentlemen, I cannot close this address, without remarking that the increasing application of natural science to rural economy, will closely connect the agricultural with the other sections of your body, and that our agriculture is the national interest which is to be chiefly benefited by their learned researches.

The late Prof. Johnston, of Edinboro', whom I was so happy as to know during his visit to this country, and whose admirable lectures in the United States have connected his name with American, as it was already identified with British agriculture, on one occasion dwelt upon the aid which the art of culture receives from every branch of science, and this association is, I trust, destined to verify the correctness of his remarks.

The section on Topography, embracing the physical geography of the continent, and the topography of the several States and Territories in detail, concerns, among much else that is interesting, the extent and character of our arable soil; our mountain elevations and depressions; our table-lands and low lands, and in connection with the section on Hydrology, will exhibit the influence of the ocean and the gulf, of our lakes and rivers, of tides, gulf streams, prevailing winds and storms on the capabilities of the country, and the practices and profits of its cultivators.

The sections of Geology and Meteorology have an equally direct bearing upon agriculture, in explaining the nature of the rocks and of the soil, the fall of rain, the necessity for irrigation and for drainage.

The section on Botany may materially aid the farmer, by teaching him the nature of the weeds that check his progress; of the rust, smut and mildew which attack his cereals; of the cause, yet to be discovered, of the rot in the potato; of the mutual adaptation of the plants to the soil; of their special habits and natural structure, their increase and decrease in various localities.

The sections of Zoology and Animal Physiology embraces, by your classification, domestic animals and their commercial value, their various breeds, the rearing of stock, and it, perhaps, properly includes the agency of animal life in fertilizing the soil. That on Commerce relates to the transport and exports of breadstuffs, and their relation to our foreign exchanges; that on Manufactures to our agricultural implements, enlarging our production by diminishing the necessity for human labor; and that on Finance, to our national wealth, of which agriculture is the most prominent feature.

We began, gentlemen, by recognizing in agriculture the largest material interest of our country, constituting the bulk of her wealth, and indicating, in no small degree, the physical comfort, the prosperity, and the civilization of our people.

We next considered its relation to less favored foreign lands, whose children look to us for food:—a relation that invests the quiet labors of our farmers with an interest beyond the seas, not simply in shaping commercial speculation, and regulating among merchants the price of bread, but in gladdening distant homes, in staying the march of famine and starvation, in allaying popular discontent, and even averting national revolutions.

After a survey of the area, the population, the products, and the statistics of our great American farm, of its home resources, its foreign markets, and its probable future, we close with the thought, that for the advancement of this great interest, which supplies millions with healthful and profitable employment, and other millions with their daily bread; canals and railroads intersect our continent, extending westward towards the far Pacific; ships whiten the ocean, and steam labors in a thousand forms. That to supply its workmen with fitting implements, inventive genius is ever wakeful, and mechanical skill unceasingly active. That in their behalf chemistry, by the crucible and analysis, is extorting from nature her hidden secrets; and science, in all her forms, is lending her skillful aid to perfect, in this advanced and advancing age, the art that was born with the creation, in the garden that was given to man to dress and to keep it.

We close with the thought, suggestive of thankfulness and good will, that all these agencies are at work for the benefit of our universal brotherhood, to lighten the primeval curse, and to compel from our common mother, for the benefit of the children of a common father, more varied and abundant harvests, with greater certainty and with lessened toil.

Let us reverently remember, gentlemen, in our study of the laws of Political Economy by the guiding light of Statistics, that the truths which we seek to discover, are a part of that universal law whose seat is the bosom of God, and whose voice the harmony of the world.

Nor let us ever forget, in the contemplation of our unparalleled blessings, that the happiness and prosperity of a nation depends infinitely less on their material wealth, than upon the observance of those great rights and duties which our fathers solemnly recognized when we took our place in the family of nations.

ON THE MANNER OF TAKING A CENSUS.

To the Committee of Publication
of the Am. Geo. and Stat. Society:

GENTLEMEN,—I propose herewith to communicate some of the results of my observation upon the difficulties to be encountered in taking a census of the population, and the statistics required by law to be obtained therewith. Having had the principal care of preparing the blanks and instructions, and of answering letters of inquiry, from the marshals appointed for taking the census of the State of New York in 1855, and the entire direction of the labor of preparing the returns of that census for publication, I could not fail of meeting with many of the difficulties that must attend every enterprise of this kind, and in a greater or less degree impair the accuracy of its results.

It is obvious that the preparation of the summaries and abstracts embodying these results, involves no source of error which is not under control; and that, with suitable precautions, and careful checks and revisions, no errors need to arise in this part of the labor. To secure accuracy in this service, it should be performed by competent persons under one general direction, and with uniform instructions for settling the various points of difficulty that are liable to arise. I am convinced that labor saving